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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
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Ralf VIERICH et al.   ) Group Art Unit: 2171
)
Application No.: **10/624,490**   ) Examiner: Unknown
)
Filed: July 23, 2003   )
)
For: PARAMETERIZED DATABASE   )
       DRILL-THROUGH   )

Box PG-PUB
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

REQUEST FOR CORRECTED PATENT
<u>APPLICATION PUBLICATION UNDER 37 C.F.R. § 1.221(b)</u>

The U.S. Patent and Trademark Office published the above-identified Application

No. 10/624,490 as Publication No. US 2004/0139102 A1 on July 15, 2004. The

published application contains several mistakes that are the fault of the Office and may

be material. Attached hereto are a copy of pages 2 and 7 of the originally filed

application and a marked-up copy of the corresponding pages of the published

application containing the mistakes.

A mistake is material when it affects the public's ability to appreciate the technical

disclosure of the patent application publication or determine the scope of the provisional

rights that Applicants may seek to enforce upon issuance of a patent. *See*

C.F.R. § 1.221(b). The mistakes, which are indicated in red ink on the relevant pages of

the marked-up copy of the published application attached hereto, are as follows:

1. In paragraph [0023] of the published specification, the text should read:

[0023]   In the invention, a drill-through path is defined by a collection of
parameter mappings that map context elements from the drill-through source
(report) to the inputs of the target. In addition to defining the target/source
mapping, these parameter mappings also **define** any translation filtering, or
formatting that may be required.

2. Claim 17 of the published specification, the text should read:

17.   Computer executable software code stored on a computer readable
medium, the code for obtaining data from one or more compatible data sources
for use **within** applications implementing a decision support system, the code
comprising, (a) code for modeling a mapping of data between a source and a
target to produce one or more possible drill-through paths between the source
and the target, each drill-through path having one or more parameters; (b) code
for accepting a request from a user for data; (c) code for **translating** the request
into a drill-through selected from the one or more possible drill-through paths
between the source and the target; (d) code for applying one or more parameters
to the selected drill-through path to produce a valid parameter mapping and **to**
transfer the requested data over the valid parameter mapping to the application;
and (e) code for displaying the requested data to the user.

As the identified mistakes affect the scope of the claims or the public's ability to

determine the same, Applicants respectfully request a corrected publication of the

pending patent application, pursuant to 37 C.F.R. § 1.221(b), that contains the corrected

claim 17 and paragraph [0023]. As provided under the rules, the Office will grant a

request for a corrected patent-application publication when the Office makes a material

mistake that is apparent from the Office records. A material mistake is defined as one

that affects the public's ability to appreciate the technical disclosure of the patent-

application publication or determine the scope of the provisional rights that an applicant may seek to enforce upon issuance of a patent. *See* 37 C.F.R. § 1.221(b).

For at least the foregoing reason, Applicants request republication of Publication No. US 2004/0139102 A1. Applicants further request a copy of the corrected published application or at least written notification of the occurrence or predicted occurrence of the publication of the corrected application.

Should any fees be needed, authorization is hereby given to charge any fees due in connection with the filing of this request to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: September 15, 2004   By:_____
                                   Meredith H. Schoenfeld
                                   Reg. No. 52, 418

Enclosures:
Marked -up copy of pages of the published application
Corresponding pages of the originally filed application

based on the context (or some content) from the source report, For example, a context filter might specify "color= red" because that was the value contained in a cell selected in the source report. Then the target report will only show the sales data for appliances that are red. The process is duplicated for each source/target application pair, although in each case the intermediate files may have slightly different formats, but they still served as a column name map.

[0012] For convenience, the following definitions are given for terms that are used throughout this application:

[0013] Business Intelligence Tools: Software that enables business users to see and use large amounts of complex data. The following three types of tools are referred to as Business Intelligence Tools: Multidimensional Analysis Software— also known as Online Analytical Processing (OLAP)— Software that gives the user the opportunity to look at the data from a variety of different dimensions. Query Tools— Software that allows the user to ask questions about patterns or details in the data. Data Mining Tools—Software that automatically (and sometimes interactively) searches for significant patterns or correlations in the data.

[0014] Cube (also known as Multidimensional Cube): The fundamental structure for data in a multidimensional (OLAP) system. A cube contains dimensions, hierarchies, levels, and measures. Each individual point in a cube is referred to as a cell.

[0015] Data-Based Knowledge: Knowledge derived from data through the use of Business Intelligence Tools and the process of Data Warehousing that give us a new kind of knowledge based on data. Data-based knowledge can have several advantages compared to experience/intuition-based knowledge: Improved accuracy—because it is based on so many detailed facts. More current—because the data ware-housing and business intelligence tools can so quickly analyze new data. More comprehensive—because so many different perspectives are available through the rapid recom-bination of elements from different dimensions and different levels of the data hierarchy. New insights are possible— because there are complex patterns in the data tat can be discovered by data mining that would never be detected by human analysis. Less subjective—because conclusions are tied directly to the physical data.

[0016] Dimension: One of the perspectives that can be used to analyze the data in an OLAP cube. When browsing the data in a cube, it is possible to view the data from the perspective of different combinations of dimensions. For a Sales database, the dimensions might include Product-_Name, Time_of_Sale, Store_Name, and Promotion_Name. Dimensions contain one or more hierarchies, which have levels for drilling up and drilling down in the cube. When a dimension has just one hierarchy, which is quite common, people often refer to the dimension itself as having levels.

[0017] Hierarchy: Organization of data into a logical tree structure. Dimensions can have one or more hierarchies. A Time dimension, for example, might have a Calendar hier-archy and a Fiscal hierarchy. Hierarchies contain levels, which organize data in a logical structure. It is the combi-nation of multidimensional data with a hierarchical view given by Business Intelligence Software that allows users to grapple successfully with large amounts of data If each member in a level has 5 to 10 children that are members at the next lower level, the user has a better chance of under-standing the significance of the data. Moving between the levels of a hierarchy is called drilling up and drilling down.

[0018] Level; The hierarchies in dimensions have levels which can be used to view data at various levels of detail. A Time dimension might have levels for Year, Quarter, Month, and Day. A Product dimension might have levels for Product Family, Product Category, Product Sub-category, and Prod-uct Name. A Customer Geography dimension might have levels for Region, Country, District, State, City, and Neigh-borhood.

[0019] Member: One of the data points for a level of a hierarchy of a dimension. Some of the members of the Month level of the Time dimension are January, February, March, and April.

[0020] Measure; A numeric value stored in a fact table and in an OLAP cube. Sales Count, Sales Price, Cost, Discount, and Profit could all be measures in an OLAP cube.

[0021] Multidimensional Analysis—also known as On-Line Analytical Processing (OLAP): A process of analysis that involves organizing and summarizing data in a multiple number of dimensions. People can comprehend a far greater amount of information if that information is organized into dimensions and into hierarchies. The wide use of spread-sheets and graphs illustrates the need for people to have their information organized. A spreadsheet is a two-dimensional analysis tool. If a person could comprehend ten individual facts, they might possibly comprehend 100 facts if they were ranged in a spreadsheet. Simplistically, if three or four or five dimensions were displayed, the amount of information that could be comprehended might increase exponentially— to 1000 facts, 10,000 facts, and 100,000 facts respectively. Multidimensional data is also organized hierarchically, allowing users to "drill down" for more detailed informa-tion, "drill up" to see a broader, more summarized view, and "slice and dice" to dynamically change the combinations of dimensions that are being viewed.

SUMMARY OF THE INVENTION

[0022] The present invention is designed to overcome at least some of the problems found in earlier systems, and also provide other advantages as will be clear from The following description.

[0023] In the invention, a drill-through path is defined by a collection of parameter mappings that map context ele-ments from the drill-through source (report) to the inputs of the target. In addition to defining the target/source mapping, these parameter mappings also determine any translation filtering, or formatting that may be required. *define*

[0024] A parameter is a way of providing 'public' access to a column for external applications by giving it a name. More generally parameters define an input or output to a drill-through source or target. Additional parameters may be used to select and define conversion functions for the parameter mappings in the drill-through process so that the invention also acts as a means for defining a data converter or filter.

[0025] According to one aspect of the present invention, there is provided a database interface for generating drill-throughs of various data cubes, derived from different report

(c) if more tan one parameter mapping points to the same target parameter then duplicating the parameter mapping one for each duplicate target path, thereby avoiding conflicts in forming the filter path and

(d) continuing to duplicate the parameter mappings until all the parameter mappings for each drill-through path point to unique target parameters.

6. The method of claim 5 wherein the source and the target are each of types which are selected from a group consisting of report and model.

7. The method of claim 5 wherein the source is of a type selected from a group consisting of report and model and the target is a cube derived from a dimension map using a transformation tool.

8. The method of claim 5 wherein the drill-through path is defined by Uniform Resource Locator (URL).

9. The method of claim 5 wherein the drill-through pat is defied by an HTML FORM.

10. A computer-based system for obtaining data from one or more compatible data sources for use wit applications implementing a decision support system, the system comprising:

(a) means for modeling a mapping of data between a source and a target to produce one or more possible drill-through paths between the source and the target, each drill-though path having one or more parameter mappings;

(b) means for accepting a request from a user for data;

(c) means for translating the request into a drill-through path selected from the possible drill-through paths between the source and the target;

(d) means for applying one or more parameters to the selected drill-through path to produce a valid parameter mapping and to transfer the requested data over the valid parameter mapping to the application; and

(e) display means for displaying the requested data to a user.

11. The system of claim 10 wherein the means for translating further comprises:

(a) means for creating a list of parameters (query items) from source and target reports;

(b) means for determining, for each source parameter, a parameter mapping that maps the parameter to the target;

(c) means for collecting the parameter mappings as a single drill-through path; and

(c) means for duplicating the parameter mappings one for each duplicate target path to avoid conflicts in forming the filter path.

12. The system of claim 10 wherein the source and the target are each of types which are selected from a group consisting of report and model.

13. The system of claim 10 wherein the source is of a type selected from 4 group consisting of report and model and the target is a cube derived from a dimension map using a transformation tool.

14. The system of claim 10 wherein the drill-through path is defined by a Uniform Resource Locator (L).

15. The system of claim 10 wherein the drill-through path is defied by an HTML FORM template.

16. An apparatus for obtaining data from one or more compatible data sources for use within applications implementing a decision support system, the apparatus comprising:

(a) means for modeling a mapping of data between a source and a target to produce one or more possible drill-through paths between the source and the target, each drill-through path having one or more parameter mappings;

(b) means for accepting a request from a user for data;

(c) means for translating the request into a drill-through path selected from the one or more possible drill-through paths between the source and the target;

(d) means for applying one or more parameters to the selected drill-through path to produce a valid parameter mapping and to transfer the requested data over the valid parameter mapping to the application; and

(e) display means for displaying the requested data to the user.

17. Computer executable software code stored on a computer readable medium, the code for obtaining data from one or more compatible data sources for use within applications implementing a decision support system, the code comprising,

(a) code for modeling a mapping of data between a source and a target to produce one or more possible drill-through paths between the source and the target, each drill-through path having one or more parameters;

(b) code for accepting a request from a user for data;

(c) code for translating the request into a drill-through selected from the one or more possible drill-through paths between the source and the target;

(d) code for applying one or more parameters to the selected drill-through path to produce a valid parameter mapping and to transfer the requested data over the valid parameter mapping to the application; and

(c) code for displaying the requested data to the user.

* * * * *

Summary of the Invention

The present invention is designed to overcome at least some of the problems found in earlier systems, and also provide other advantages as will be clear from the following description.

5   In the invention, a drill-through path is defined by a collection of parameter mappings that map context elements from the drill-through source (report) to the inputs of the target. In addition to defining the target/source mapping, these parameter mappings also define any translation, filtering, or formatting that may be required.

A parameter is a way of providing 'public' access to a column for external
10   applications by giving it a name. More generally parameters define an input or output to a drill-through source or target. Additional parameters may be used to select and define conversion functions for the parameter mappings in the drill-through process so that the invention also acts as a means for defining a data converter or filter.

According to one aspect of the present invention, there is provided a database
15   interface for generating drill-throughs of various data cubes, derived from different report generating applications. The interface comprises: (a) means for accepting a request from a user for data; (b) means for translating the request into a drill-through selected from a plurality of possible drill-through paths between a source and a target; (c) means for applying one or more parameters to the selected drill-through path to produce a valid
20   drill-through path and to transfer the requested data over the valid drill-through path to an application; and (d) display means for displaying the requested data to the user. According to anther aspect of the present invention, there is provided a computer-based method for obtaining data from one or more compatible data sources for use within applications implementing a decision support system, the method comprising the steps of,
25   in a business modeling tool before using a business intelligence application, (a) modeling a mapping of data between a source and a target to produce one or more possible drill-through paths between the source and the target, each drill-through path having one or more parameter mappings, in a business intelligence application, using a report authoring tool, (b) accepting a request from a user for data, (c) translating the request into a drill-
30   through path selected from the possible drill-through paths between the source and the target, (d) applying one or more parameters to the selected drill-through path to produce a

17. Computer executable software code stored on a computer readable medium, the code for obtaining data from one or more compatible data sources for use within applications implementing a decision support system, the code comprising,

5   (a) code for modeling a mapping of data between a source and a target to produce one or more possible drill-through paths between the source and the target, each drill-through path having one or more parameters;

(b) code for accepting a request from a user for data;

(c) code for translating the request into a drill-through selected from the one or more possible drill-through paths between the source and the target;

10   (d) code for applying one or more parameters to the selected drill-through path to produce a valid parameter mapping and to transfer the requested data over the valid parameter mapping to the application; and

(e) code for displaying the requested data to the user.